ZL Ham News Blogs Wiki's Forums Files

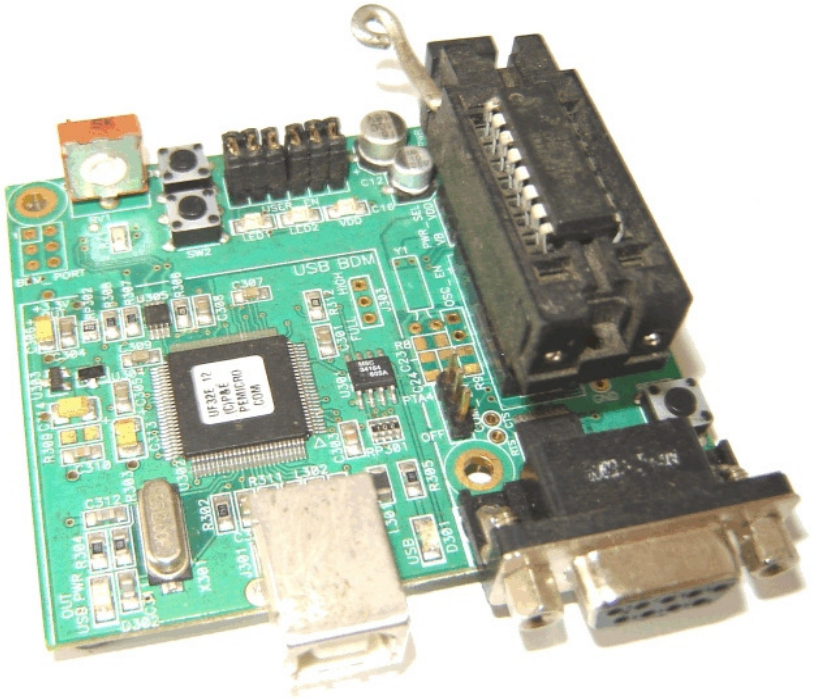
ZL Ham Band Scope
The Official Newletter of ZLHam.geek.nz

# ZL Ham | One Cycle Per Second

February 2011

## Putting Fun into Funtastic.

## The Freescale MC9S08 Single Chip Computer.




Band Scope is aimed at promoting the hobby of Ham Radio & Electronics in New Zealand. It offers a place to showcase your special interest in Ham Radio & Electronics.

Band Scope Proving Popular
Special Event Call Signs
Freescale MC9S08 101
Papakura Special Event Station
VP8O South Orkney Island
Summer Sprint (Phone)
DX Weekend vhf/uhf/shf
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Antarctic Activity Week
4CX250 Interest.
The Mystery Inside The Box Revealed

**ZL Ham Band Scope Issue # 5**
**http://www.zlham.geek.nz**

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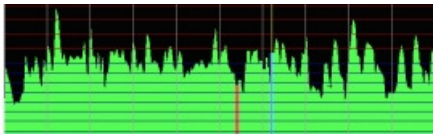

**ZL Ham Band Scope #5 February 2011.**

Greetings All.

Welcome to the February 2011 Issue of ZL Ham Band Scope.

This month in Band Scope...
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Firstly, a very warm welcome to new members to ZL Ham and thank you for joining. This months issue of Band Scope has lots to interest all I am sure.

Before you dive into this months news, contests, views and items of interest, a reminder. ZL Ham is a community of people interested in radio & electronics, it is you, our members, that drive the web site. Please help by telling all you come into contact with about ZL Ham and the great community we have going here.

**Band Scope Proving Popular.**

The popularity of Band Scope has been steadily growing since its introduction. Statistics are gathered for both the web site and the FTP server. These show that it was a good idea to provide both download methods. Hits are made up of successful downloads and retries. Sometimes Internet connections die so the real number of Band Scope reads is somewhat lower. None the less readership numbers are encouraging. Encouraging others to help, a more difficult challenge.

| **Issue** | **FTP** Hits | **WWW** Hits | **Total** Hits |
|---|---|---|---|
| Band Scope #2 November 2010 | 29 | 22 | 51 |
| Band Scope #3 December 2010 | 89 | 28 | 117 |
| Band Scope #4 January 2011 | 45 | 162 | 207 |

**Daily News Bought To You By**

The SOUTHGATE AMATEUR RADIO CLUB

**Special Event Call Signs.**

Recently we have been hearing a few stations with unusual call signs such as ZL50GH & ZL50VK. These stations are licensed under relaxed new policies which allow Radio Hams to celebrate significant anniversaries with a special call sign. One such Ham is Graeme, ZL1ANH, who for the next year is operating as ZL50GH from his home QTH of Kerikeri in the far north.

The Papakura Radio Club, ZL1VK, has also been hitting the airwaves as ZL50VK, January to March 2011 to celebrate the formation of the club 50 years ago.

I am fortunate in that I am able hear both stations from my QTH and note that interest from other stations is reflected in the big pile ups. I think at first David, operating as ZL50VK, was somewhat taken back by the number of stations wanting to work him.

For further information on the Papakura Radio Club, NZART Branch 65, please visit their web site. New members are always welcome.

http://www.qsl.net/zl1vk/

**Graeme, zl1anh, as a proud young man.**

Graeme has provided Band Scope with a short bio and pictures for our readership. Many thanks for many years service to Ham Radio and also your ongoing contribution to the hobby.

Graeme ZL1ANH & ZL50GH

I was licensed first in 1961 in Papakura and came on the air with a ZC1 and a home brew valve receiver. I've been interested in DX and contesting, having won all the ZL ones several times and done pretty well with some of the internationals. Most of my operating was in Rotorua where I was also AREC section leader for about 25 years. That took a lot of my time as we averaged a search a month for many years and once, three on one day. Many of them were in the Urewera's and Mamaku's and originally where exclusively on HF but I designed, built and installed a series of UHF/VHF links that enabled use of a VHF hand held. Many of these repeaters are still in the hills.

Since 2005 I have also used the call sign ZL1T. DX has always interested me and currently my country count is around 314, mostly on 20m . I operated SSB, CW , PSK31 and RTTY and have just had my first 6m contacts - E51 and VK2, that's taken 50 years.

I am editor of DX Down under column in Break In and contribute a crossword also. Two years ago I retired to Kerikeri with my XYL Sue. I now have a 55ft telescoping/tilt tower with 4 element Yagi for 20/15/10 and wire antennas for other bands. For 2011 I have the call sign ZL50GH and hope to work you with that.

**50 Years On And Still Enjoying Ham Radio.**

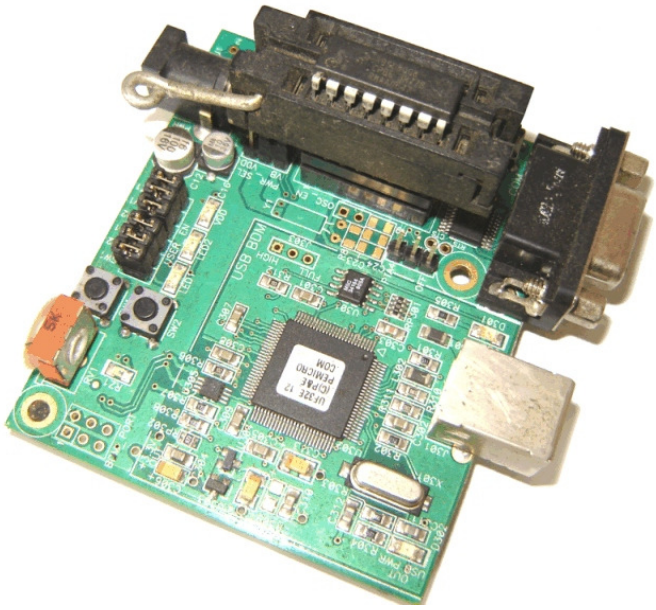
Thanks for sharing with us Graeme. I am sure you have found another place for all those QSL cards. Congratulation on your station set up. Apart from the computer nothing really changes does it. A modest set up is often the best set up. May you have many years of happy retirement for both you and Sue.

**Freescale MC9S08.**

**Manufacturer:**
FREESCALE SEMICONDUCTOR
Order Code:
element14 1106182
**Availability: AU 2 , SG 7**
**Unit Price: $109.98 NZD**

Digi Key DEMO9S08QG8E-ND
**Availability: US 29**
**Unit Price: $50 USD**

Manufacturer Part No:
DEMO9S08QG8E



Description

- DEMO KIT WITH DEBUG, MC9S08Q8/4
- Type:Hardware / Software - Eval/Demo Board
- Kit Contents:MC9S08QG8 Board, software, cables, connectors
- Supported Families:S08QG
- Features:Internal 32kHz Oscillator, USB-to-BDM Interface, RS-232 Serial Port w/ DB9 Connector
- Tool / Board Applications:General Purpose MCU, MPU, DSP, DSC
- SVHC:No SVHC (18-Jun-2010)
- Development Tool Type:Demonstration Board
- Kit Contents Descriptive:DEMO9S08QG8 Board, CodeWarrior Development Studio CD, CodeWarrior Development Studio Service Pack CD, USB Cable, Quick Start Guide, User Manual, Resource CD.
- Supported Devices:MC9S08QG8
- Tool / Board Application:Demonstration

Today there are a myriad of different micro processors to pick from and development equipment ranging from a few hundred to a few thousand dollars. The pic micro is one of the cheapest to use. As a result we see many designs in Ham projects. Freescale is another signification player. Freescale was formed from Motorola's micro processor division who created such classics as the 6800 & 68000 series of chips. Motorola was instrumental in forming some of the early standards still in use today.

The 9S08 chip is a progression of the 6800 series and makes use of LSI to provide all the features of a modern micro. The most significant specification of the 9S08 is its 1.8 – 3.3 | 2.7 – 5.5 volt operating voltage range. This coupled with other low power options makes this chip a good choice for battery powered operation. Low voltage detection, sleep modes and wake up are standard on board features. Freescale manufacture a range of 9S08 chips and the one shown above is a general purpose micro. The Freescale Selection Guide can be found **Here**.

MC9S08QG8 Product Features: Flash 8 KB: RAM 512B: ADC 10-Bit x 8: SCI x 1: SPI x 1: I2C x 1: ACMP x 1: Timer 1 x MTIM: Clock Type ICS: High performance, low voltage, small package.

I am sure many recognize some of the above terms and may even know their meaning. The world of micro processors is encroaching on all accept the smallest village in the middle of nowhere, even then, someone is bound to have a digital watch.

This Freescale micro is an all in one chip with numerous features to control, measure, time and communicate to name a few. Everything you need to create a real world application with but a handful of components.

Over the next few months I will be doing a regular feature... Freescale MC9S08 101.

**ZL Ham Calendar. February 2011.**

The DX calendar has been thrown into disarray with the cancellation of events. Thankfully there is plenty of activity still to warrant adding another news page to the web site at the start of the month.

Make sure you visit the ZL Ham calendar from time to time and if you know of an event, no matter how small it may seem, please either submit it or drop me a line with some details.

More information on the following events is on the ZL Ham Calendar. Make sure you take a note of any event that you may be interested in.

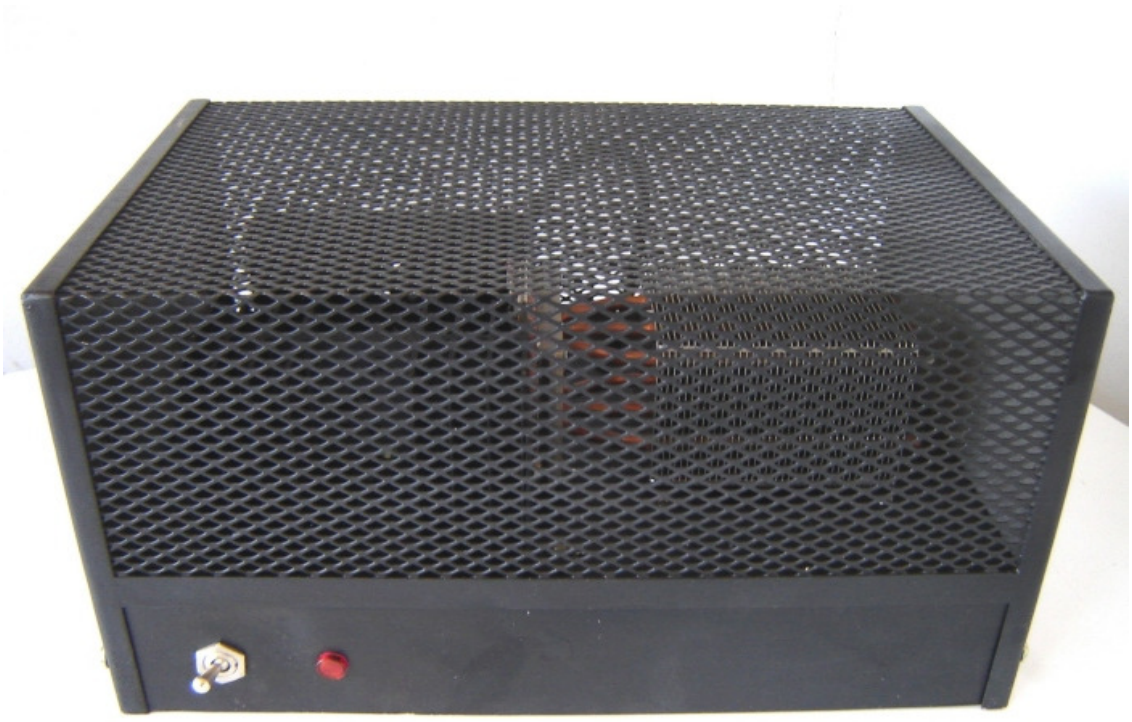
Papakura Special Event Station
VP8O South Orkney Island
Summer Sprint (Phone)
DX Weekend vhf/uhf/shf
V47JA St Kitts
Antarctic Activity Week

**4CX250 Interest.**

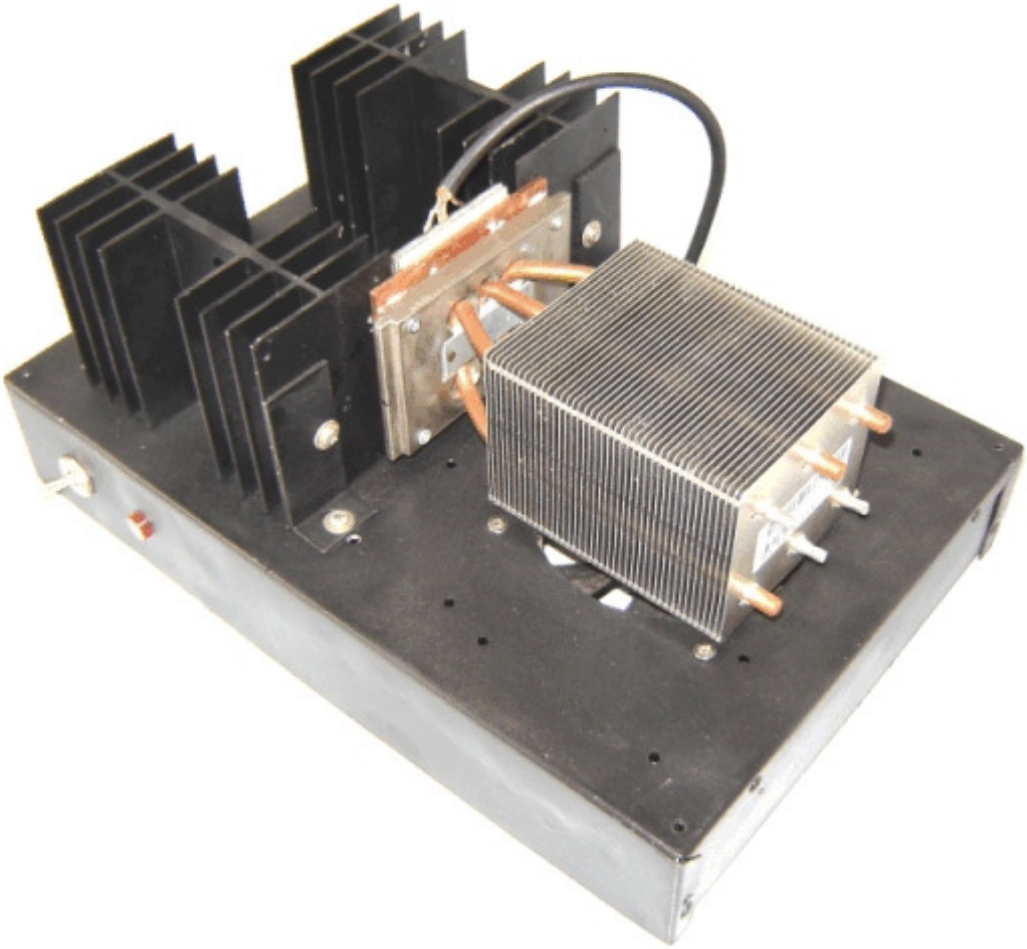
There seems to be some interest in the 4CX250 tube and high voltage regulators on the Internet. My blog is attracting a few hits. What you see below is just some of my collection.

How many items can you identify? The 6 smallest items at the front are, two ceramic feed thru capacitors, an HV ceramic axial capacitor, a ceramic stand off, two feed thru links with bypass caps on a metal plate and a HV ceramic capacitor.

**The Mystery Inside The Box Revealed.**

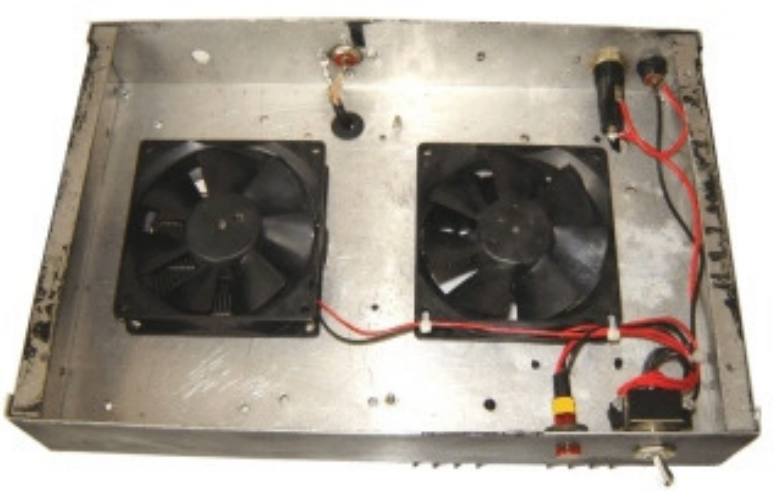


Last month I asked what is inside the box. If you guessed a power supply then you were wrong. The finned heat sink may have given it away. I will take the cover off so you can have a closer look.



A look at the bottom of the unit says there is not much to it. Two fans, some power wiring and a connector or two.

Really there can only be one possibility.



By now I am sure you guessed dummy load. The black heat sinks were part of the original power supply that the case belonged to. Just after I bought the dummy load chip I was visiting a friend and spotted the fancy heat sink with the copper pipe cooling system sitting on his desk. It was there last time I visited many months previous. Go for it were his words when I said I had a use for it.

I have 12 volt fans coming out my ears. Switch, lamp, fuse, circuit board and SO259 connector came from my collection and a visit to to the electronics store sorted out the power connectors and cable needed.

My local engineer helped with a suitable piece of copper to mount the dummy load on and the rest was up to my construction skills. Oh, a can of mat black paint gladly gave it's all for the project with the last splutter going towards a heat sink for my linear amp project.

The first order of the day was to break out the jig saw and after carefully marking, make the holes for the fans. Nuts, bolts and screws are always a problem for the home builder. I keep a record player plinth full of salvaged screws to scrounge through.

The case already had plenty of holes for the switch, lamp, fuse and connector so it was just a matter of checking and ensure holes were the correct size.

Metal work done, it was time to paint. The base, cover, heat sinks and L brackets all got a couple of coats. Perhaps the most difficult part was drilling the holes to mount the copper plate to the three heat sinks. The two black heat sinks support the whole structure on the two L brackets thereby suspending the other fancy heat sink directly above the fan.

The tab on the dummy load was another challenge. I cut two pieces of circuit board and two pieces of Teflon sheet to make a sandwich and glued everything together to get the right height above the seating plane.

A short length of co-axial cable, a grommet and a supply cable finished off the project. It is always handy having bits and pieces lying around the radio shack for projects such as this. A certain sense of satisfaction can be found creating a tidy little project like this.

The technical specifications of the 32-1005 dummy load are:

Nominal Impedance: 50 ohms ± 5%
Frequency Range (GHz): DC-0.5
Temperature Coefficient: ± 200 PPM/C Max
Operating Temperature ( C ): -55 - +150
VSWR (MAX): 1.25:1 DC-0.2 GHz
1.50:1 0.2-0.5 GHz
Average Power (Watts): 800
DC Resistance: 50 Ohms ± 5%

http://www.emc-rflabs.com/

Until next time, this has been Peter Bennett, ZL1UPB, from the ZL Ham editors desk.

All that is good about New Zealand Radio & Electronics with emphasis on accentuating the positive and eliminating the negative.

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